

REMARKS

This is a full and timely response to the Office Action mailed November 3, 2004. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

Present Status of Patent Application

Upon entry of the amendments in this response, claims 2-29 remain pending in the present application. Claim 1 has been canceled without prejudice, waiver or disclaimer and claims 25-29 have been newly added. Applicants reserve the right to pursue the subject matter of the canceled claim in a continuing application, if Applicants so choose, and do not intend to dedicate the canceled subject matter to the public.

Reconsideration and allowance of the application and presently pending claims are respectfully requested.

A. Allowable subject matter

Applicants wish to place on record their gratitude for the Examiner's indication of allowability of some of the pending claims. Specifically, the Office action states that claims 2-5 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. The Office action further states that claims 6, 9, 14-17, 19-21, and 24 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in the Office action and to include all of the limitations of the base claim and any intervening claims.

Response to the indication of allowability

Claims 2-5

Claim 2 has been rewritten in independent form including all the limitations of the base claim 1. Applicants respectfully request allowance of independent claim 2 and the corresponding dependent claims 3-5.

Claims 6, 9, 14-17, 19-21, and 24

Applicants have suitably amended, where pertinent, claims 6, 9, 14-17, 19-21, and 24 to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and have further provided below, arguments for allowance of these and other claims. Consequently, Applicants respectfully request allowance of claims 6, 9, 14-17, 19-21, and 24.

B. **Claim Rejections - 35 U.S.C. § 112**

General statement of the rejection

Claims 6, 9-10, 14-17, 19-21 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Response to the Rejection

Claims 6, 9, 14-17, 19, 21, and 24

Claim 6, 9, 14-17, 19, 21, and 24 have been appropriately amended to rectify antecedent basis. Applicants respectfully request withdrawal of the rejection, followed by allowance of claims 6, 9, 14-17, 19, 21, and 24.

Claims 10 and 20

Applicants respectfully assert that claims 10 and 20, which are dependent claims have sufficient antecedent basis and traverse the rejection of these claims. Applicants respectfully request withdrawal of the rejection, followed by allowance of claims 10 and 20.

C. **Claim Rejections - 35 U.S.C. § 102**

a) **General statement of the rejection**

Claims 1, 8, 10, 13, 18 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Cao (U.S. Patent 6,397,607 B1).

Response to the rejection

Claim 1

Claim 1 has been canceled without prejudice, waiver, or disclaimer thereby rendering moot the rejection of this claim.

Claims 8 and 10

Claims 8 and 10 depend directly on independent claim 2. Since independent claim 2 is allowable, as pointed out in Section A above, dependent claims 8 and 10 are also allowable as a matter of law. *In re Fine*, 837 F. 2d 1071 (Fed. Cir. 1988). Consequently, Applicants traverse the rejection of claims 8 and 10 and request allowance of these claims.

Claim 13

A proper rejection of a claim under 35 U.S.C. 102 requires that a single prior art reference disclose each element of the claim. See, e.g., *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983).

In rejecting claim 13, the Office action asserts that Cao “FIG. 1 comprises a clock recovery circuit 50, an optical out-coupler (tap 44) for output retimed optical signals, and an EDFA amplifier 42 for compensating loss of the retimer. Cao teaches in col. 5, line 65 – col. 4, line 35 that the coupler 70 switches signal between the two ports that are coupled to the isolator and the EDFA respectively. That is, the coupler 70 acts as a switch for outputting current data bit under the control of the recovered clock pulse” (Emphasis added).

With reference to the coupler 70, Cao, in his col. 5, lines 54-50, states, “In the NOLM 60, the synchronized and recombined N channel input signal is split into two parts by the 50:50 optical coupler 70. A first part of the split signal propagates in a clockwise (CW) direction in the nonlinear optical loop 71, while the second part of the optical signal propagates in a counterclockwise (CCW) direction in the nonlinear optical loop 71.” Persons of ordinary skill in the art will recognize that an optical coupler typically provides signal coupling on a continuous basis, which is clearly different from signal switching, which is carried out at specific instances of time. Attention is drawn to Applicants’ claim 13 wherein is defined “operating an optical switch to sample the optical data at a specific time and for a specific time duration during a clock cycle.” Clearly, Cao’s coupler 70 is not described as carrying out such an operation.

Additionally, Cao does not teach or disclose “switching” the coupler 70, if such an action was feasible, at a specific time related to a clock, because Cao does not teach or disclose a clock connected to his coupler 70. On the other hand, Applicants have disclosed in their FIG. 1, which is one exemplary embodiment, an optical crossbar switching device 10 that is controlled by a clocked gate pulse 18. The operation of such a configuration is explained in Applicants’ specification in further detail.

With reference to the mention of “clock recovery circuit 50” in the Office action, it will be relevant to point out that Cao does indeed show a clock recovery circuit 50. However, this circuit is coupled into the NOLM 60 via the WDM 76, rather than into coupler 70. Cao discloses in col. 6, line 67 to col. 7, line that the “output clock signal from the clock recovery circuit 50 is used to directly drive the laser 52...” rather than drive the coupler 70. Therefore, Applicants respectfully assert that Cao’s circuit does not teach or suggest the method steps of Applicants’ claim 13.

In summary, Applicants respectfully assert that Cao fails to disclose or teach each element of Applicants’ claim 13 as required for a proper rejection under 35 U.S.C. 102. For

example, Applicants wish to point out that at least the following two method steps, reproduced below for easy reference, are not disclosed or taught by Cao:

operating the optical switch to sample the optical data signal at a specific time and for a specific time duration during a clock cycle to obtain a current bit sample...; operating the optical switch to dump the light corresponding to said current bit sample at the end of said time period;

Due to the above-mentioned reasons, Applicants respectfully traverse the rejection of claim 13, and request withdrawal of the rejection followed by allowance of claim 13.

Claims 18 and 23

Claims 18 and 23 depend directly on independent claim 13. Since independent claim 13 is allowable, dependent claims 18 and 23 are also allowable as a matter of law. *In re Fine*, 837 F. 2d 1071 (Fed. Cir. 1988). Consequently, Applicants traverse the rejection of claims 18 and 23 and request allowance of these claims.

b) General statement of the rejection

Claims 1 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Heuring et al. (U.S. Patent 4,900,115).

Response to the rejection

Claim 1

Claim 1 has been canceled without prejudice, waiver, or disclaimer thereby rendering moot the rejection of this claim.

Claims 10 and 11

Claims 10 and 11 depend directly or indirectly on independent claim 2. Since independent claim 2 is allowable, as pointed out in Section A above, dependent claims 10 and 11 are also allowable as a matter of law. *In re Fine*, 837 F. 2d 1071 (Fed. Cir. 1988). Consequently, Applicants traverse the rejection of claims 10 and 11 and request allowance of these claims.

c) General statement of the rejection

Claims 1, 7, 13 and 22 are rejected under 35 U.S.C. 102(c) as being anticipated by Sarathy et al. (U.S. Patent 6,636,318 B2).

Response to the rejection

Claim 1

Claim 1 has been canceled without prejudice, waiver, or disclaimer thereby rendering moot the rejection of this claim.

Claim 7

Claim 7 depends directly on independent claim 2. Since independent claim 2 is allowable, as pointed out in Section A above, dependent claim 7 is also allowable as a matter of law. *In re Fine*, 837 F. 2d 1071 (Fed. Cir. 1988). Consequently, Applicants traverse the rejection of claim 7 and request allowance of this claim.

Claim 13

As mentioned above, a proper rejection of a claim under 35 U.S.C. 102 requires that a single prior art reference disclose each element of the claim. See, e.g., *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983).

Applicants' claim 13 is a method claim containing several method steps. Unfortunately, the Office action merely provides a list of several elements disclosed by Sarathy, and fails to point out where in Sarathy can be found a teaching relating to Applicants' method steps. Attention is now drawn to Sarathy's col. 6, lines 62-67, which has been cited in the Office action: "(T)his latter signal 551 is input to the AOR stage 531, along with the split output 550A from stage 520, which is the data signal, and is input to the AOR at SCA 570. This input 550A gates, through phase modulation in the MZI containing SOAs 571 and 572, the clock signal 551 to generate the retimed output of this stage, 552." Applicants respectfully submit that such a disclosure in Sarathy does not teach or suggest the various method steps of Applicants claim 13 as alleged in the Office action.

For example, Sarathy does not teach or suggest "propagating the light corresponding to the current bit sample along an optical pathway of the retimer for a time period substantially equal to the clock cycle," nor does Sarathy teach or suggest "operating the optical switch to dump the light corresponding to said current bit sample at the end of said time period."

It may also be relevant to point out that, if so used, it is impermissible to utilize hindsight in carrying out a rejection under 35 U.S.C. 102. The law clearly asserts that "it is impermissible, however, simply to engage in hindsight reconstruction of the claimed invention, using the applicant's structure as a template and selecting elements from references to fill the gaps." *Interconnect Planning*, 774 F.2d at 1143, 227 U.S.P.Q. (BNA) at 551.

Due to at least the above-mentioned reasons, Applicants respectfully assert that the single cited prior art reference, Sarathy, fails to disclose or teach each element of claim 13.

Therefore, Applicants respectfully traverse the rejection of claim 13, and request withdrawal of the rejection followed by allowance of claim 13.

Claim 22

Claim 22 depends directly on independent claim 13. Since independent claim 13 is allowable, as explained above, dependent claim 22 is also allowable as a matter of law. *In re Fine*, 837 F. 2d 1071 (Fed. Cir. 1988). Consequently, Applicants traverse the rejection of claim 22 and request allowance of this claim.

D. Claim Rejections - 35 U.S.C. § 103

General statement of the rejection

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cao (U.S. Patent 6,396,607 B1) in view of Al-hemyari (U.S. Patent 6,510,259 B1).

Response to the rejection

Claim 12

Claim 12 currently depends directly on independent claim 2. Since independent claim 2 is allowable, as pointed out in Section A above, dependent claim 12 is also allowable as a matter of law. *In re Fine*, 837 F. 2d 1071 (Fed. Cir. 1988). Consequently, Applicants traverse the rejection of claim 12 and request allowance of this claim.

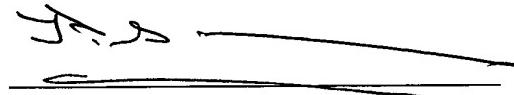
Prior Art Made of Record

The prior art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicants respectfully submit that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that claims 2-29 are in condition for allowance. Although some dependent claim rejections and some obviousness rejections are explicitly addressed above, the omission of arguments for other claims is not intended to be construed as an implied admission that the Applicant agrees with the rejection or finding of obviousness for the respective claim or claims. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned representative at (770) 933-9500.

Respectfully submitted,



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